REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

In response to the formality-based objections to claims 1, 4 and 11, these claims have been amended so as to obviate each of the Examiner's stated grounds for objection. Similar amendments have been made elsewhere.

In response to the rejection of claim 11 under 35 U.S.C. §112, second paragraph, this claim has also been amended so as to obviate this ground of rejection.

In response to the rejection of claims 9-13 under 35 U.S.C. §101, claim 13 has been cancelled, claim 9 has been amended so as to now explicitly include recitation of a computer system including numerous identified structures thus constituting necessary physical articles or objects to constitute a machine or manufacture within the meaning of 35 U.S.C. §101. In this regard, it is noted that a stored computer program defines logic structure in the context of physical hardware in a computer system which provides "means" for performing functions such as those set forth in various "means-plus-function" elements of claim 9.

Claim 12 has been amended so as to now be directed to a computer-readable medium containing a recorded computer program, etc., and thus it is also well within the ambit of statutory subject matter under 35 U.S.C. §101--even under current U.S. Patent and Trademark Office standards. Claim 13 has been cancelled.

The rejection of claims 1-13 under 35 U.S.C. §102 as allegedly anticipated by Lin WO '980 is respectfully traversed.

Lin's use of an ontology is very peripheral to the Lin system. In fact, in the specific embodiment in Lin, it simply uses the well known and conventional WordNet Ontology in an entirely conventional and well known manner - namely to generate homonyms and hypernyms

etc. (i.e. roughly as if it were a thesaurus generating roughly equivalent search terms to increase the recall of the search) in the event that the search fails to find an exact match based on the predicates generated from an input query.

The basic Lin approach is really as set out in the Lin claims - namely it firstly takes a bunch of input documents and generates "predicates" from these in an automated manner (note it is a little vague as to exactly how this is done except to say that it involves a sentence lexer 122 which refers to the ontology - i.e. WordNet - to ascertain the part of speech of each word in a respective sentence - i.e. verb, noun, determinative, etc. and then a parser and parse tree converter which generate a predicate structure (see Figure 5)). This approach is reasonable where there is no possible ambiguity as to the part of speech of a particular word. e.g. in the example given heart and octopus are always nouns and have is always a verb. However, it is unclear how the system would cope with a word like building which is sometimes a verb and sometimes a noun. It is precisely this problem with conventional ontology based searching techniques that the present invention addresses.

The way in which applicant addresses this is to provide a user interface which permits the user to associate each search term with a respective sub-space of an ontology, and then to search for a match with each entered term only within the sub-space with which the user has associated the respective search term. To remove possible ambiguity, the current wording of claim 1 where it says "controlling a user interface..." has been amended to avoid any possibility that the system performs the association as is done in Lin, rather than the user, as is done in the present invention. The above portion of claim 1 is therefore amended to read "controlling a user interface to permit a user to input up to at least two search terms using free text entry and to

permit the user to associate the or each search term with a respective distinct sub-space of the ontology" to avoid any such ambiguity.

As explained at length in the specification, this is advantageous precisely because ontologies are not in and of themselves able to determine the part of speech of a word in a sentence and furthermore, computer programs are rather inexpert even today at performing such a task - whereas for a human user the determination of the part of speech of a word is so trivial that it places only a very minimum burden on the user. Nonetheless, as is apparent from an analysis of Lin itself, the part of speech of a word within a sentence either of a document to be returned or of a search query is very valuable information and so there is a real benefit in having this provided to the system, and then using this information to reduce the extent of the search which needs to be carried out (only the respective sub-space needs to be searched).

Furthermore, it is worth noting that the search strategy adopted in applicant's invention (e.g., as compared to that adopted in Lin) is rather different. In particular, each input search term is searched for individually to try and find a match ("comparing each input search term with nodes of the corresponding sub-space only, in order to attempt to determine one or more possible matches or partial matches") with a node in the respective distinct sub-space and then these component match results are combined to try and find the best overall match with a document or set of documents.

By contrast, in Lin, it is clear that once a set of search query predicates have been identified they are compared with each other stored predicate to try and identify whole predicate matches in the first instance at least and only after having carried such a search is the search broadened to look for partial matches, etc. Clearly, the approach which applicant has adopted is much more efficient in almost all cases.

With respect to claim 2, the Examiner relies upon Lin at page 29, lines 7-26. However, claim 2 requires generating at least one association between both first and second types of nodes for each electronic document, the nodes belonging to a predetermined ontology which has the property that a sub-tree of a node of a given type contains only nodes of that same given type. Claim 2 also requires storing the pair or group of associations thus generated for a particular document in addition to the document in a digital memory such that the associations can be readily linked to the corresponding document.

By contrast, Lin at page 29, lines 7-26 merely describes document clustering component 180 making use of results of the document ontological parser 140. Each document stored in the data repository 150 (and each document matched to a user query) must first be processed by the ontological parser 140 to determine that it is such a match. In this way, a collection of predicates is associated with that document and the pattern of those predicates made within the document constitutes the "concept pattern" of that document. This apparently is supposed to permit the document clustering component 180 to provide a more in-depth, query-specific search when the basic ontological parsing cannot winnow the search space sufficiently.

Lin describes at page 29, lines 7-26 his concept-based search and retrieval system 100 as beginning to produce potential matches for a specific user query when the document clustering component 180 begins to train itself on matches. While each document is represented by one or more "concept pattern vectors" that are apparently added to a list of possible matches and fed to a self-adaptive feature map constructed specifically for this query, etc., at the conclusion of all of this, Lin simply notes that the feature map represents clusters of documents, which are relatively more or less similar to each other.

Nowhere in the cited section of Lin is there any teaching or suggestion of applicant's claim 2 method which, *inter alia*, requires generating for each electronic document at least one association with each of first and second types of nodes, the nodes belonging to a predetermined ontology which has the property that a sub-tree of a node of a given type contains only nodes of that same given type. Nor does Lin teach storing the pair or group of such associations so generated for a particular document in addition to the document in a digital memory such that the associations can be readily linked to the corresponding document.

For dependent claim 7, the Examiner relies upon Lin at page 34, line 30 through page 35, line 15. However, once again, the cited passage of Lin does not teach the claimed subject matter.

In particular, claim 7 depends from claim 2 and the newly cited portion of Lin does not supply the deficiencies already noted above for independent claim 2. Nor does it appear that this brief section of Lin supports any alleged teaching of the six additional method steps recited at claim 7.

With respect to independent apparatus claim 9, the Examiner relies upon Lin at page 17, lines 3-24; page 43, lines 4-15; page 35, lines 12-15 and page 29, line 27 through page 30, line 3.

The passage at page 17, lines 3-24 does indicate that Lin uses an object-oriented data repository 150 which stores query predicate libraries (generated by the query ontological parser 120) as well as matching document predicate libraries (from the document ontological parser 140) in the data repository 150 for later user query. However, this cited passage does not teach the stored ontological data to comprise a pair or group of associations associating each electronic document with at least one node of a first type and at least one node of a second type of a predetermined ontology.

Similarly, Lin at page 35, lines 12-15 as part of the discussion demonstrating that the word "do" in the sentence "Do octopuses have hearts?" merely fills a grammatical role and can be removed to produce an identical parse tree and the same predicate structure, this in no way supports the Examiner's allegation that such passage teaches applicant's "translation means" -- which generates a translated search request by comparing the first term of a search request with nodes of the first type and comparing the second term of the search request with nodes of the second type define specific nodes which correspond to the terms of the search request.

Given such fundamental deficiencies of Lin with respect to features discussed above, it is not believed necessary at this time to detail additional deficiencies of Lin with respect to other features of the rejected independent claims or the added features of rejected dependent claims. Suffice it to note that it is impossible, as a matter of law, for any reference to anticipate a claim unless it teaches each and every feature of that claim.

Accordingly, this entire application is now believed to be in allowable condition, and a formal notice to that effect is respectfully solicited.

Respectfully submitted,

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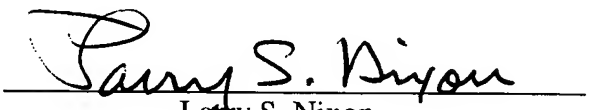
By: 

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